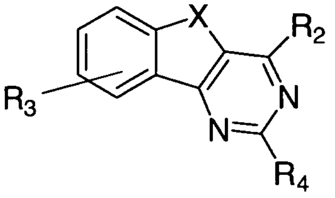
Amendments to the Claims

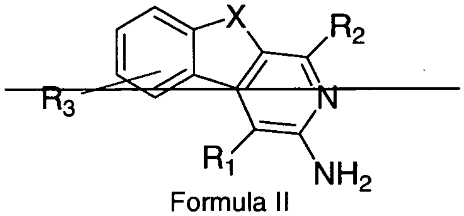
This listing of claims will replace all prior versions, and listings, of claims in the application:

What is claimed is:

1. A compound having the structure of Formula I ~~or II~~



Formula I



Formula II

or a pharmaceutically acceptable salt thereof, wherein

~~(a) R_1 is selected from the group consisting of~~

~~(i) -COR_5, wherein R_5 is selected from H, optionally substituted C_{1-8} straight or branched chain alkyl, optionally substituted aryl and optionally substituted arylalkyl;~~

~~wherein the substituents on the alkyl, aryl and arylalkyl group are selected from C_{1-8} alkoxy, phenylacetyloxy, hydroxy, halogen, p-tosyloxy, mesyloxy, amino, cyano, carboalkoxy, or NR_7R_8 wherein R_7 and R_8 are independently selected from the group consisting of hydrogen, C_{1-8} straight or branched chain alkyl, C_{3-7} cycloalkyl, benzyl, aryl, or heteroaryl or NR_7R_8 taken together form a heterocycle or heteroaryl;~~

~~(ii) $COOR_5$, wherein R_5 is as defined above;~~

~~(ii) cyano;~~

~~(iii) -$CONR_9R_{10}$ wherein R_9 and R_{10} are independently selected from H, C_{1-8} straight or branched chain alkyl, C_{3-7} cycloalkyl, trifluoromethyl,~~

~~hydroxy, alkoxy, acyl, alkylcarbonyl, carboxyl, arylalkyl, aryl, heteroaryl and heterocyclyl;~~

~~wherein the alkyl, cycloalkyl, alkoxy, acyl, alkylcarbonyl, carboxyl, arylalkyl, aryl, heteroaryl and heterocyclyl groups may be substituted with carboxyl, alkyl, aryl, substituted aryl, heterocyclyl, substituted heterocyclyl, heteroaryl, substituted heteroaryl, hydroxamic acid, sulfonamide, sulfonyl, hydroxy, thiol, amino, alkoxy or arylalkyl, or~~ ~~R_9 and R_{10} taken together with the nitrogen to which they are attached form a heterocycle or heteroaryl group;~~

~~(v) optionally substituted~~ ~~C_{1-8} straight or branched chain alkyl;~~

~~wherein the substituents on the alkyl, group are selected from~~ ~~C_{1-8} alkoxy, phenylacetyloxy, hydroxy, halogen, p-tosyloxy, mesyloxy, amino, cyano, carboalkoxy, carboxyl, aryl, heterocyclyl, heteroaryl, sulfonyl, thiol, alkylthio, or~~ ~~NR_7R_8 wherein R_7 and R_8 are as defined above;~~

(a ~~b~~) R_2 is selected from the group consisting of optionally substituted alkyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclyl and optionally substituted C_{3-7} cycloalkyl, C_{1-8} alkoxy, aryloxy, C_{1-8} alkylsulfonyl, arylsulfonyl, arylthio, C_{1-8} alkylthio, or -$NR_{24}R_{25}$

with the proviso that the heteroaryl or heterocyclyl group is not furyl, pyridyl or thiazole,

wherein R_{24} and R_{25} are independently selected from H, C_{1-8} straight or branched chain alkyl, arylalkyl, C_{3-7} cycloalkyl, carboxyalkyl, aryl, heteroaryl, and heterocyclyl or R_{24} and R_{25} taken together with the nitrogen form a heteroaryl or heterocyclyl group,

with the proviso that the heteroaryl or heterocyclyl group is not furyl, pyridyl or thiazole,

(~~c~~b) R_3 is from one to four groups independently selected from the group consisting of:

hydrogen, halo, C_{1-8} straight or branched chain alkyl, arylalkyl, C_{3-7} cycloalkyl, C_{1-8} alkoxy, cyano, C_{1-4} carboalkoxy, trifluoromethyl, C_{1-8} alkylsulfonyl, halogen, nitro, hydroxy, trifluoromethoxy, C_{1-8} carboxylate, aryl, heteroaryl, and heterocyclyl, $-NR_{11}R_{12}$,

wherein R_{11} and R_{12} are independently selected from H, C_{1-8} straight or branched chain alkyl, arylalkyl, C_{3-7} cycloalkyl, carboxyalkyl, aryl, heteroaryl, and heterocyclyl or R_{10} and R_{11} taken together with the nitrogen form a heteroaryl or heterocyclyl group,

$-NR_{13}COR_{14}$,

wherein R_{13} is selected from hydrogen or alkyl and R_{14} is selected from hydrogen, alkyl, substituted alkyl, C_{1-3} alkoxyl, carboxyalkyl, aryl, arylalkyl, heteroaryl, heterocyclyl, $R_{15}R_{16}N\ (CH_2)_p-$, or $R_{15}R_{16}NCO(CH_2)_p-$, wherein R_{15} and R_{16} are independently selected from H, OH, alkyl, and alkoxy, and p is an integer from 1-6,

wherein the alkyl group may be substituted with carboxyl, alkyl, aryl, substituted aryl, heterocyclyl, substituted heterocyclyl, heteroaryl, substituted heteroaryl, hydroxamic acid, sulfonamide, sulfonyl, hydroxy, thiol, alkoxy or arylalkyl, or R_{13} and R_{14} taken together with the carbonyl form a carbonyl containing heterocyclyl group;

(~~d~~c) R_4 is selected from the group consisting of hydrogen, C_{1-6} straight or branched chain alkyl, benzyl

wherein the alkyl and benzyl groups are optionally substituted with one or more groups selected from C_{3-7} cycloalkyl, C_{1-8} alkoxy, cyano, C_{1-4} carboalkoxy, trifluoromethyl, C_{1-8} alkylsulfonyl, halogen, nitro, hydroxy, trifluoromethoxy, C_{1-8} carboxylate, amino, $NR_{17}R_{18}$, aryl and heteroaryl,

-OR_{17}, and –$NR_{17}R_{18}$,

wherein R_{17} and R_{18} are independently selected from hydrogen, and optionally substituted C_{1-6} alkyl or aryl; and

(~~c~~d) X is selected from C=S, C=O; CH_2, CHOH, $CHOR_{19}$; or $CHNR_{20}R_{21}$ where R_{19}, R_{20}, and R_{21} are selected from optionally substituted C_{1-8} straight of branched chain alkyl, wherein the substituents on the alkyl group are selected from C_{1-8} alkoxy, hydroxy, halogen, amino, cyano, or $NR_{22}R_{23}$ wherein R_{22} and R_{23} are independently selected from the group consisting of hydrogen, C_{1-8} straight or branched chain alkyl, C_{3-7} cycloalkyl, benzyl, aryl, heteroaryl, or $NR_{22}R_{23}$ taken together from a heterocycle or heteroaryl;

~~with the proviso that in a compound of Formula II when R_1 is a cyano, then R_2 is not phenyl.~~

with the proviso that one or more of X, R3 or R 4 is independently, heteroaryl or heterocyclyl, or ~~,~~one or more of variable X, R3 or R4 is independently substituted with heteroaryl or heterocyclyl.

2. The compound of claim 1, formula I, wherein R_4 is amino.

3. The compound of claim 1, formula I, wherein R_2 is aryl or heteroaryl.

4. (cancelled)

5. (cancelled)

6. (cancelled)

7. The compound of Claim 1, which is 2-amino-4-furan-2-yl-indeno[1,2-d]pyrimidin-5-one.

8. The compound of Claim 1, which is 2-amino-4-phenyl-indeno[1,2-d]pyrimidin-5-one.

9. The compound of Claim 1, which is 2-amino-4-thiophen-2-yl-indeno[1,2-d]pyrimidin-5-one.

10. The compound of Claim 1, which is 2-amino-4-(5-methyl-furan-2-yl)-indeno[1,2-d]pyrimidin-5-one.

11. The compound of Claim 1, which is 2,6-diamino-4-furan-2-yl-indeno[1,2-d]pyrimidin-5-one.

12. (cancelled)

13. (cancelled)

14. (cancelled)

15. (cancelled)

16 (cancelled)

17. (cancelled)

18. A pharmaceutical composition comprising the compound of claim 1 and a pharmaceutically acceptable carrier.

19. (cancelled)

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (cancelled)

25. (cancelled)

26. (cancelled)